REAL INNOVATION
LIMITLESS OPPORTUNITY
LEWISVILLE INDEPENDENT SCHOOL DISTRICT

DATE: November 13, 2013

TO: Pam Flores, Principal

SUBJECT: LHS-Killough - IAQ - Air Test Results - Mrs. Spangler's Office & Library

On Saturday 11/9, SWG Air tested Mrs. Spangler's office and the Library. It is typically assumed that indoor spore levels in an area with filtered or air conditioned air, and activity levels associated with schools average 10% to 40% of the outdoor levels. Data from the airborne fungi sampling indicated that the total indoor concentration of mold/fungi in Mrs. Spangler's office, was **7.1%**, Library, was **7.8%** of the outdoor levels. Utilizing this theory, the indoor concentrations are well within the acceptable guidelines for areas with filtered air or air conditioning. If you have any questions, please call me.
Thanks,
Paul

Paul Siddall
Maintenance Energy Auditor (IAQ)
Facility Services
Lewisville ISD
469-446-8882

DATE: October 21, 2013

TO: Pam Flores, Principal

SUBJECT: LHS-Killough - IAQ - Air Test - Natalie Spangler's Office

On Thursday 10/17, I received Work Order #167953: *"Mrs. Spangler feels like there might be mold in her office and would like for someone to come and check."* Today 10/21, I inspected Mrs. Spangler's office. I didn't see any evidence of water intrusion, but I am submitting a request for a P.O., to Air Test her office. Pending the weather, I expect the test to be completed by the end of this week, and we should have the results back by Tuesday 10/29. If you have any questions, please contact me.
Thanks,
Paul

Paul Siddall
Maintenance Energy Auditor (IAQ)
Facility Services
Lewisville ISD
469-446-8882

Southwest GEOSCIENCE
2351 W. Northwest Hwy., Suite 3321
Dallas, Texas 75220
Ph: (214) 350-5469
Fax: (214) 350-2914

November 15, 2013

Lewisville Independent School District
340 Lake Haven
Lewisville, Texas 75057
Attn: Mr. Paul Siddall

Re: Limited Mold Assessment Services
Killough LHS – North
Mrs. Spangler's Office and Library
1301 Summit Avenue
Lewisville, Texas
LISD PO# P247101
SWG Project No. 0113H265

Introduction

Southwest Geoscience (SWG) conducted limited mold assessment activities for the Lewisville Independent School District (Lewisville I.S.D.) within Killough LHS - North located at 1301 Summit Avenue in Lewisville, Texas (hereinafter referred to as the "Site"). The investigation was limited to areas of the Site identified by Lewisville I.S.D. as described below. The assessment was performed by Mr. Clinton S. Jech, a State of Texas licensed Mold Assessment Technician (License #MAT1075), on November 9, 2013. SWG's mold services definitions and limitations are included as an attachment to this report.

Investigation Areas

Lewisville I.S.D. identified the following physical portions of the Site as the target investigation areas ("Investigation Areas") for mold assessment: readily accessible areas within Mrs. Spangler's Office and the Library. SWG's mold assessment services were limited to the Investigation Area(s) identified by Lewisville, I.S.D. Additional areas or portions of the Site were out-of-scope and not included in SWG's mold assessment or this report at this time.

Scope of Work

As set forth in SWG's Mold Assessment Proposal No. 0113H1384 dated October 29, 2013. SWG's scope-of-work was to provide visual and/or analytical mold assessment and related services in the Investigation Areas which included:

Visual Reconnaissance: SWG performed a visual reconnaissance of the Investigation Areas for visible indications of moisture intrusion (as indicated by staining or visible moisture) and/or suspect mold growth. SWG's visual reconnaissance only included readily accessible or visible portions of the Investigation Areas.

Suspect Mold Growth Sampling and Analysis: SWG collected limited ambient air samples for nonviable mold spores utilizing Air-O-Cell cassettes. "Air-O-Cell" refers to slit impaction air sampling cassettes manufactured by Zefon Analytical Accessories, St. Petersburg, Florida.

Site Reconnaissance Observations/Findings and Recommendations

SWG's Mold Assessment Site reconnaissance was performed on November 9, 2013 by Mr. Clinton S. Jech. SWG's visual reconnaissance of the Investigation areas revealed the following:

Temperature and Relative Humidity

Temperature readings collected inside the investigation areas on November 9, 2013 ranged from 72.1 to 72.5 degrees Fahrenheit while relative humidity ranged from 32.6 to 36.2 percent.

Temperature readings collected outside the building ranged from 68.9 to 69.0 degrees Fahrenheit while outside relative humidity ranged from 45.8 to 46.8 percent.

Relative humidity is a measure of the moisture content of air and is closely tied to the comfort of the office/workplace temperature. As with temperature, there are no regulations governing acceptable office/workplace humidity ranges. Humidity levels in the office/work place are not only related to health effects, but also have operational impacts on modern office equipment.

Workplace/office temperatures have historically been considered a subjective factor because the perception of uncomfortable temperature levels is specific to each individual. There are no regulations governing acceptable office/workplace temperature ranges, but significant research has been conducted which indicates that there are temperature ranges that are not only comfortable but also result in optimum performance. ASHRAE (American Society of Heating, Refrigerating & Air Conditioning Engineers) has published guidelines describing thermal environmental conditions that at least 80% of the persons who occupy that environment will find acceptable or "comfortable." Table I below explains the applicable limits and guidelines.

Table I
Acceptable Ranges Of Temperature And Humidity

Relative Humidity	Winter Temperatures	Summer Temperatures
30%	68.5 to 76°F	74 to 80°F
40%	68.5 to 75.5°F	73 to 79.5°F
50%	68.5 to 74.5°F	73 to 79°F
60%	68 to 74°F	72.5 to 78°F

SWG utilized a Protimeter Moisture Measurement System (MMS) instrument (Model No. BLD2000) to measure and diagnose dampness in the drywall within random areas. The MMS is a battery powered handheld unit that is equipped with hydrostick probes to measure moisture content in wood, drywall and other and non-conductive materials. The device measures electrical conductivity of building materials and compares the conductivity readings to an internal, electronic standard reading for normal or "dry" materials.

Moisture content readings were obtained by pushing the moisture probe pins into surfaces. The measured values were then displayed on a colored scale depicting if the materials measured were normal (dry), higher than normal but not critical (at risk) or contained excessive moisture levels (wet). Based on the manufacturer's guidelines, the instrument measurement values are described below:

< 5%	Out of Range
> 5% but < 16%	Normal
> 17% but < 20%	Higher than Normal but Not Critical
> 20%	Excessive Moisture Levels

Moisture meter readings taken from the walls within the investigations areas ranged from 9-11% which is considered normal by the manufacturer.

Air Monitoring Results

SWG collected two (2) samples from the interior of the building and two (2) samples from the exterior of the building. The microbial samples were analyzed by Steve Moody Micro Services, Inc. (SMMS) in Farmers Branch, Texas; SMMS is a State of Texas licensed mold analysis

laboratory and accredited under the AIHA Laboratory Quality Assurance Program for Environmental Microbiology.

Air testing performed using spore traps found that airborne mold spores in the room were considerably lower and were qualitatively similar to those measured outside of the building at the time the sampling was performed. Total fungal spore concentration within the investigation areas ranged from 1,020 to 1,170 counts/m^3, while the exterior levels ranged from 7,640 to 14,360 counts/m^3.

The American Conference of Governmental Industrial Hygienists (ACGIH) sets forth assessment criteria related to the "indoor/outdoor" relationship where the indoor air quality should be at or below that of outdoor air quality with regard to fungal spores (see ACGIH Bioaerosols, Assessment and Controls publication, 1999).

Suspect Mold

No visible mold was observed during the assessment. No odors or excessive dust were noted.

Conclusions and Recommendations

Based on SWG's limited assessment and the analytical results, it appears that the indoor air quality, as it relates to airborne fungi, was within recommended guidelines.

If you have any questions regarding this report or if we can assist you with any other matter, please contact the undersigned at (214) 350-5469.

Sincerely,
Southwest Geoscience

Darren G. Bowden
Corporate Director
Industrial Hygiene Services
Texas Mold Assessment Consultant
Lic. No. MAC0321

Attachments:
Analytical Results/Chain of Custody
Mold Services Definitions & Limitations/Standard of Care and Reliance

Southwest
GEOSCIENCE

Analytical Results/Chain of Custody

IAQ Mold Report

Summary

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Southwest Geoscience - Dallas, TX
Lab Job No. 13F-12361
Project : Killough LHS - North
Report Date 11/12/2013 12:49 PM
Project # : 0113H263 **Sample Date :** 11/09/2013
Sample Type: Spore Trap, Non-cultured **Spore Trap Type:** Zefon - Air-O-Cell
Test Method: Mold: ASTM D7391-09 - Standard Profile

On 11/11/2013, four (4) samples were submitted by Clint Jech of Southwest Geoscience - Dallas, TX (located at 2351 W NW Hwy #3321, Dallas, TX 75220) for Spore Trap, Non-cultured mold analysis. This report consists of three sections; a summary section, a data detail section, and an analytical notes section.

Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
1	75	Exterior, East	Agaricus / Agrocybe	440
			Alternaria	160
			Ascospores	840
			Aspergillus / Penicillium	2480
			Basidiospores	7080
			Cladosporium	1720
			Coprinus	160
			Curvularia	40
			Drechslera / Bipolaris group	120
			Hyphal / Spore Fragments	960
			Myxomycete / Periconia / Rust / Smut	280
			Pithomyces	80
			Total:	14360
2	75	Exterior, West	Agaricus / Agrocybe	520
			Ascospores	80
			Aspergillus / Penicillium	960
			Basidiospores	3400
			Cladosporium	920
			Coprinus	160
			Curvularia	80
			Drechslera / Bipolaris group	200
			Hyphal / Spore Fragments	760
			Myxomycete / Periconia / Rust / Smut	560
			Total:	7640

IAQ Mold Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

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DSHS License No.: LAB0117
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Sample Number	Volume (liters)	Sample Description	Identification	Concentration spores/cubic meter
3	150	Mrs. Spangler's Office * See Analytical Notes report for further details	Alternaria	20
			Aspergillus / Penicillium	220
			Basidiospores	360
			Cladosporium	40
			Drechslera / Bipolaris group	60
			Hyphal / Spore Fragments	180
			Myxomycete / Periconia / Rust / Smut	140
			Total:	1020
4	150	Library	Aspergillus / Penicillium	140
			Basidiospores	500
			Cladosporium	40
			Coprinus	60
			Curvularia	60
			Drechslera / Bipolaris group	20
			Hyphal / Spore Fragments	120
			Myxomycete / Periconia / Rust / Smut	180
			Total:	1120

Analyst(s): Rob Greene

Lab Director: Bruce Crabb

Approved Signatory : Bruce Crabb

Thank you for choosing Steve Moody Micro Services

IAQ Mold Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Data Detail

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

Client : Southwest Geoscience - Dallas, TX
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Sample ID:	**1**			**2**			**3**			**4**		
Location:	Exterior, East			Exterior, West			Mrs. Spangler's Office			Library		
Debris Rating:	2			3			5			3		
Media Expires On:	Apr 2014			Apr 2014			Apr 2014			Apr 2014		
Notes Included?:												
Volume:	75			75			150			150		
	raw ct.	MDL	spores/m³	raw ct.	MDL	spores/m³	raw ct.	MDL	spores/m³	raw ct.	MDL	spores/m³
Agaricus / Agrocybe	11	40.00	440	13	40.00	520						
Alternaria	4	40.00	160				1	20.00	20			
Ascospores	21	40.00	840	2	40.00	80						
Aspergillus / Penicillium	62	40.00	2480	24	40.00	960	11	20.00	220	7	20.00	140
Basidiospores	177	40.00	7080	85	40.00	3400	18	20.00	360	25	20.00	500
Chaetomium												
Cladosporium	43	40.00	1720	23	40.00	920	2	20.00	40	2	20.00	40
Coprinus	4	40.00	160	4	40.00	160				3	20.00	60
Curvularia	1	40.00	40	2	40.00	80				3	20.00	60
Drechslera / Bipolaris group	3	40.00	120	5	40.00	200	3	20.00	60	1	20.00	20
Hyphal / Spore Fragments	24	40.00	960	19	40.00	760	9	20.00	180	6	20.00	120
Memnoniella												
Myxomycete / Periconia / Rust / Smut	7	40.00	280	14	40.00	560	7	20.00	140	9	20.00	180
Pithomyces	2	40.00	80									
Stachybotrys												
TOTALS	359		14360	191		7640	51		1020	56		1120
Analyst	Rob Greene			Rob Greene			Rob Greene			Rob Greene		
Analysis Date	11/12/2013			11/12/2013			11/12/2013			11/12/2013		

Debris Rating Key:

0 - No debris detected.
1 - Trace debris.
2 - Light debris.
3 - Moderate debris.
4 - Substantial debris.
5 - Extensive debris.
6 - Field blank.

NOTE: Debris defined as skin, fibers, pollen grains, insect parts, and/or other non-fungal particles.

IAQ Mold Report

Steve Moody Micro Services, LLC
2051 Valley View Lane
Farmers Branch, TX 75234 Phone: (972) 241-8460

Analytical Notes

DSHS License No.: LAB0117
AIHA EMPAT ID: 102577

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Samples Analyzed

Sample No:	3 : Mrs. Spangler's Office
Notes:	35% Occluded.

Field Blanks

No discernable field blanks were submitted with this set of samples.

NOTE: All remaining samples suitable for analysis.

Methods

Method: ASTM D7391-09: Categorization and Quantification of Airborne Fungal Structures in an Inertial Impaction Sample by Optical Microscopy.

Calculation: Spores/cubic meter = (Raw spore count)*(MDL)

Note: MDL (Minimum Detection Limit) is calculated based upon 1 raw spore count.

Steve Moody Micro Services recommends two significant figures for calculated values based on ASTM D7391-09.

This report must not be used by the customer to claim product certification, approval, or endorsement by AIHA, ISO, or any agency of the Federal Government.

Chain of Custody

Page 1 of 1

SMMS LABS

Lab Job # 13F-12361 AOC 4
Lab Job #
Lab Job #

e call in advance for immediate, after-hour, & weekend pricing & availability.*
naround of Culture Samples subject to Culture Growth**

ASBESTOS PLM
Bulk ☐ 1 day ☐ 2 day ☐ 3 day ☐ 5 day ☐ Immediate
☐ **Analyze All** ☐ **Positive Stop**

PCM Air (7400) ☐ 1 day ☐ 2 day ☐ 3 day ☐ 5 day ☐ Immediate
TOTAL DUST (0500/0600) ☐ 1 day ☐ 2 day

MOLD
Non-culture (Tape / Bulk / (Air)) ☐ 1 day ☒ 2 day ☐ Immediate
☒ Air Standard Profile ☐ Air Expanded Profile
Analyze Blanks ☐ **Yes** ☐ **No**
Culture (Swab / Bulk / Plate) ☐ 7-14 day

OTHER:

ASBESTOS TEM

Air AHERA Method	☐6 hr	☐12hr	☐24 hr
Air 7402 (Modified)	☐1 day	☐2 day	☐3 day
Bulk/Wipe/Micro Vac	☐1 day	☐2 day	☐3 day
Water	☐1 day	☐2 day	☐3 day

Analyze Blanks ☐**Yes** ☐**No**

BACTERIA

Heterotrophic Plate Count (HPC)	☐3 day	
HPC + Gram Stain	☐3 day	☐5 day
HPC + 3 Gram Neg ID	☐6-8 day	
HPC + 5 Gram Neg ID	☐6-8 day	
Fecal Coliform (MPN)	☐3 day	
Total Coliform & E Coli (P/A)	☐2-3 day	

Billing Company / City: SWG Dallas
Submitter's Company:
Submitter's Name: Clinton S. Jech
Project: Killough LHS - North
Contact Information: Name: Clinton S. Jech
E-mail Results to: Clint.Durren/Veronica
Invoice Address: Veronica

# of Samples: 4
Sample Date: 11/9/2013
Project #: 0149M263
Phone #:
Mobile #: (972) 989-1031
Fax #:
P.O. #:

Please review paperwork and samples before submitting to lab. Unsealed / improperly packaged / damaged / expired samples or excessive administrative requests may incur additional fees

Notes:

Sample #	Sample Description	Vol. / Area if applicable	Location / Notes
1	Exterior, East	75	T= 68.9° H = 45.8 %
2	Exterior, West	75	T= 69.0° H = 46.8 %
3	Mrs. Spangler's office	150	T= 72.5° H = 36.2 % AM = 9-10 %
			Ceilings = Ceiling Tile
			Walls = Drywall
			Floors = Carpet
4	Library	150	T= 72.1° H = 32.6% AM = 9-11 %
			Ceilings = Ceiling Tile
			Walls = Drywall / CMU
			Floors = Carpet

Released By:	Date / Time:	Received By:	Date / Time:
	11/9/2013 1555	Secured drop box	11/11/13 7:30A
Released By:	Date / Time:	Received By:	Date / Time:

Southwest
GEOSCIENCE

Mold Services Definitions & Limitations/ Standard of Care and Reliance

Mold Services Definitions & Limitations

"Mold" defined. Mold is a general term used to describe various types of singled-celled naturally occurring biological organisms occurring worldwide. For purposes of this report (and the Texas Mold Assessment & Remediation Rules), the term "mold" is broadly defined to include any living or dead fungi or related products or parts, including spores, hyphae, and mycotoxins.

Limited Scope of Mold Assessment. The scope of SWG's mold assessment services as reflected in the Proposal and this report are limited in that (i) they were physically limited to certain portions of the building structure (e.g., the Client identified Investigation Areas); and (ii) limited by accessibility to building materials or components within the Investigation Area(s). In contrast to a Limited Assessment" is a comprehensive assessment, which involves destructive sampling methods and the scope of the assessment typically extending to the entire building structure.

Time sensitive. Mold assessments are essentially a *"snap shot in time,"* and the results are only relevant at the time of site reconnaissance. Because mold, when biologically active, is a living organism, its presence is influenced and controlled by environmental conditions. Mold assessments, therefore, are "time sensitive" in that the presence and concentration of mold and similar organisms in building structures or in the air is directly influenced by environmental conditions (such as humidity, moisture, nutrients and substrates), whether natural or caused by man, which conditions may vary significantly over relatively short periods of time.

Methodologies. Currently, mold assessment methodologies and protocols in Texas are governed by persuasive guidelines (rather than promulgated federal/state or local regulations). Presently, there is no data that supports a threshold limit or dose-response relationship for exposure to mold aeroallergens, individual pathogens, opportunistic pathogens and/or mycotoxins. The Occupational Safety and Health Administration (OSHA), the National Institute of Occupational Safety and Health (NIOSH) and other non-governmental associations, have not yet established permissible exposure limits (PELs), recommended exposure limits (RELs), or other limit values for aeroallergens. Because no limit values presently exist, SWG will not and cannot represent that the site contains no harmful microbes, mold, fungi, or their metabolites, or other latent conditions beyond those identified by the limited scope of this mold assessment.

Findings limited. Findings from a limited mold assessment are limited because of the nature of the information obtained (e.g., visual reconnaissance of readily accessible areas of building structures, interview information, anecdotal information, and limited sampling data derived from one or more specific sampling events). SWG cannot warrant the accuracy of prior or subsequent information/data, reports and services performed by other firms at the Site. SWG assumes no responsibility or liability for errors in information or data provided by or through the client or third party sources. SWG's services are not to be construed as legal or medical interpretation or advice.

Moisture Intrusion Limitation. SWG performs mold assessment services and is not a moisture intrusion, HVAC, roofing, plumbing or building envelope specialist. However, during the course of conducting its mold assessment services, SWG will report observed areas of apparent moisture intrusion. SWG does not and will not investigate the cause or causes of such observed moisture intrusion. In the event apparent moisture intrusion is observed, SWG will recommend that the client contact a specialist (i.e., plumbing contractor, building envelope specialist, HVAC contractor, water intrusion specialist, etc.) to assist the client in determining the specific cause or causes of the moisture intrusion and remedial options.

Texas Licensing Requirements. SWG (and/or its personnel) will render the services set forth in this proposal in the capacity of a Texas licensed Mold Assessor. SWG is not licensed as a Mold Remediation Contractor and does not perform mold remediation. As of January 1, 2005, Texas law has required that Mold Assessors and Mold Remediation Contractors be licensed.

Mold Remediation Certificate. For mold remediation projects (above certain size thresholds), applicable Texas law (i.e., Texas Occupation Code Section 1958.54 and T.A.C. Section 295.397 (the Texas Mold Assessment and Remediation Rules), requires that a "Certificate of Mold Remediation" be issued by the Mold Remediation Contractor upon successful completion of the project. This certificate must be provided to property owners no later than the 10th day after the date on which the mold remediation is completed at a property. The Mold Remediation Certificate issued by the Mold Remediation Contractor must include a certification by the Mold Assessor that the mold remediation project has been successfully completed in accordance with the mold remediation protocol.

Be advised that SWG's issuance of a Mold Remediation Certificate upon successful completion of a Mold Remediation project does not mean, warrant or otherwise guarantee that mold will not be subsequently found in any portion of the Investigation Area or the Site. In the event that SWG is engaged to render services in connection with a mold remediation project, SWG will require *Client to provide to SWG a signed certificate prepared by Client's moisture intrusion specialist or appropriate contractor stating that all sources of moisture which resulted in the presence of mold in the Investigation Area have been fully remediated and corrected.*

Standard of Care

SWG performed its Services in accordance with generally accepted practices of the profession undertaken in similar services at the same time and in the same geographical area. No other warranties, expressed or implied, apply to the Services hereunder or this report.

Reliance

SWG's proposal for this project, services and this report have been prepared on behalf of and for the exclusive use of Lewisville Independent School District solely for their use and reliance in assessing the presence of mold in the Investigation Areas of the site. Lewisville Independent School District is the only party to which SWG explained the risks and limitations of the services and was solely involved in shaping the scope of services. Accordingly, reliance on this report by any other party may involve assumptions leading to an unintended interpretation of findings and opinions. With the consent of the client, SWG may offer reliance to third parties

or contract with other parties to develop findings and opinions related to such party's unique risk management concerns. Notwithstanding the foregoing, reliance by any and all third parties upon the proposal, the Services or this report shall be limited in the aggregate to all relying parties to the fair market value of the Services provided by SWG.